Memorandum

Date: December 9, 2005

To: Management Agencies

Project Agencies

From: **Department of Water Resources**

Subject: **Fish Actions for Water Year 2004-05 (October 1, 2004 through September 30, 2005)**

Fish Action #1, December 6-15, 2004 (Delta Action 8)

Description of Actions

Delta Action 8 is an experiment that investigates the relationship between the interior Delta survival and the exports. This experiment was initiated to answer the question of whether the exports should be reduced in the November – January period from the present 65% E/I ratio to 35% to protect juvenile salmon migrating through the Delta at that time. Using the coded wire tagged salmon, the survival of juvenile Chinook salmon emigrating through the Delta from Sacramento River was evaluated.

During Data Assessment Team (DAT) calls in late November of 2004, it became apparent that the SWP and CVP would be reducing exports in December because there was no excess water in the system to pump. Ultimately, the Management Agencies requested an export reduction at State Water Project (SWP) facilities to keep the combined SWP/CVP exports stable for the 10 day period using EWA and B2 assets to cover costs. The combined exports were projected to be about 6000 cfs during the 10 day period of December 6 -15, 2004.

In December 2004, groups of coded wire tagged late-fall from Coleman National Fish Hatchery were released as part of Delta Action 8. Groups of marked fish were released in Georgiana Slough on 12/8 and at Ryde on 12/9 and at Port Chicago on 12/10. Recoveries of fish from these release sites have been used to estimate relative interior Delta survival and which is then regressed against export conditions. The Port Chicago release was made to obtain absolute survival by factoring out ocean survival.

Also, fish were released on the Sacramento River at Sacramento on 12/6, and at Vorden (upstream of the Delta Cross Channel (DCC) and Georgiana Slough, but downstream of Sutter and Steamboat Sloughs) on 12/7. The Vorden release was made to evaluate the effect of

Georgiana Slough when the DCC gates were closed when compared to Ryde and to estimate the effect of Steamboat and Sutter Sloughs when compared to the Sacramento release. The Sacramento releases were made to estimate survival through the Delta and by comparing recoveries from the Battle Creek release to the Sacramento release we could estimate survival in the Sacramento River between Battle Creek and the Delta. One other release was made at Sherman Island in 2004 to estimate absolute survival of upstream release groups from recoveries at Chipps Island.

Cost of Actions

The Department of Water Resources (DWR) has determined that this action used 4.2 TAF of Environmental Water Account (EWA) water based on estimated daily SWP exports without the action in the range between 1891 cfs and 4398 cfs. The actual amount varied due to the requirement of meeting the Delta standards.

Fish Action #2, February 2-7, 2005

Description of Actions

On January 24, 2005, the incidental take of pre-spawning adult delta smelt at the SWP/CVP exceeded the "concern level" of 892. The Delta Smelt Working Group (DSWG) met via conference call on January 28, 2005 to discuss the elevated incidental take of pre-spawning adult delta smelt at both the SWP and the Central Valley Project (CVP) facilities.

In addition to incidental take, the DSWG considered 1) the 2004 Fall Mid-Water Trawl index (74) was the lowest on record, 2) preliminary results from the Spring Kodiak Trawl Survey which indicated not only that overall numbers were very low compared to other years but also that about half the adults sampled were found in the south and central Delta, and 3) the apparent proximity to the onset of spawning as indicated by Delta water temperatures of about 9^0C (most spawning is thought to occur between about 12-18 ^{0}C).

As a result, the DSWG recommended an export reduction to 1500 cfs combined for 7 days, to take effect as soon as possible. The Water Operation Management Team (WOMT) initially accepted the recommendation, but ultimately modified the recommendation and approved a pumping curtailment to 3000 cfs combined exports for 7 days. After reviewing the available fish facility monitoring data on February 3, indicating take of delta smelt was declining, the DSWG recommended ramping up exports over three days. Daily take declined from a peak of 153 (combined) on January 27 to zero by about the middle of February.

Cost of Actions

The DWR has determined that this action reduced the SWP and the CVP exports by approximately 32.8 TAF and 25.4 TAF, respectively. About 14 TAF of CVPIA (b)(2) water and 11.4 TAF of EWA water were used at the CVP export facility. Thus, a total of 44.2 TAF of EWA water was used for this action based on estimated daily SWP exports without the action in the range between 5400 cfs and 6500 cfs. The actual amount varied due to the requirement of meeting the Delta standards.

Fish Action #3, April 17-30, 2005 (Pre-VAMP "Shoulders")

Description of Actions

The Management Agencies requested an export reduction at the SWP and the CVP facilities prior to the Vernalis Adaptive Management Plan (VAMP) period. Based on information on delta smelt gonadal development and water temperature from the Spring Kodiak Trawl Survey, the DSWG inferred that most delta smelt had spawned by April 1.

The DSWG requested Particle Tracking Modeling (PTM) to evaluate the potential risk of larval smelt entrainment in the April 1-14 (pre-VAMP) period. However, about this time, a determination was made by the VAMP technical committee that the VAMP experiment would not begin until May 1 due to high flows on the San Joaquin River. The DSWG reviewed these initial PTM runs on March 28, but did not recommend an action for the April 1-14 period as the difference in particle fate for this period was not significant.

Additional PTM results reviewed on April 13 indicated that most of the expected particle entrainment at the CVP and SWP would occur during the April 16-30 period. The DSWG recommended a reduction in exports to 50% of the flow of the San Joaquin River at Vernalis, to begin as soon as possible and last until the initiation of the VAMP experiment, to minimize the incidental take of larval delta smelt too small to be identified and counted at the export facilities. The Vernalis flows were in the range of 6,883 cfs and 9,010 cfs at SWP pumping varied between 1,099 cfs and 3,995 cfs.

Cost of Actions

The DWR has determined that this action used 121.9 TAF of EWA water based on estimated daily SWP exports without the action in the range between 6000 cfs and 6680 cfs. The actual amount varied due to the requirement of meeting the Delta standards.

Fish Action #4, May 1-31, 2005 (VAMP)

Description of Actions

Because of above-normal snow levels in the Sierra Nevada, flows on the San Joaquin River were well above the 5000 cfs safety threshold established by DWR for the installation of the Head-of-Old-River Barrier by April 15. The VAMP technical committees, however, still intended to release and re-capture marked fish, and so moved back the scheduled start of the VAMP period to May 1, hoping that more stable flows could be maintained on the San Joaquin tributaries by that time.

On April 14 the CALFED Operations Group convened a special meeting to discuss the VAMP, and scenarios were proposed for export levels of 1500 cfs and 3000 cfs, given flows at Vernalis of 7000, 8000 or 10,000 cfs. The VAMP technical committee stressed that it was important to the integrity of the experiment to declare a level of exports and maintain it to the extent practicable.

On April 27 the WOMT discussed export levels of 1500 cfs, 3000 cfs, 4000 cfs (based on 50% of the SJR flow), and 8000 cfs (based on a 1:1 exports-to-flow ratio). On April 29 the WOMT agreed to a combined export level of 1500 cfs for the May 1-15 period, when it was thought that San Joaquin River tributaries would be most controllable, and 3000 cfs for the May 16-31 period, so that two experimental trials could be conducted sequentially and at least one trial would coincide with the low-exports/high-flows scenario proposed by the VAMP technical committee. On May 1 the SWP instituted its share of a 1500 cfs export level, but the CVP did not, instead pumping at 1760 cfs. On May 3, after high-level discussions, the WOMT agreed to a combined export level of 2250 cfs for the entire VAMP period. To keep the combined export at an average of 2250 cfs during the VAMP period, SWP and CVP were pumping at the range of 578 cfs to 1400 cfs and 902 cfs to 1760 cfs, respectively.

The temporary agricultural barrier was installed at the Middle River site with its flap gate tied open on May 13, 2005. Later on May 31, 2005, the temporary barrier at Old River at Delta Mendota Canal (DMC) site was installed with gate tied open. The temporary barrier at Grant Line Canal remained open. It was not possible to install the temporary fish barrier at the Head of Old River due to the high San Joaquin River flow.

Cost of Actions

The DWR has determined that this action used 134 TAF of EWA water based on estimated daily SWP exports without the action in the range between 6000 cfs and 6680 cfs. The actual amount varied due to the requirement of meeting the Delta standards.

Fish Action #5, June 1-8, 2005 (Post-VAMP "Shoulders")

Description of Actions

Because Chinook salmon smolts from the San Joaquin River continued to migrate into the southern Delta in June, the increase in export pumping to a baseline level (6,680 cfs at the SWP and about 4,300 cfs at the CVP) was made gradually over the first 8 days in June.

The temporary agricultural barriers continued to operate with flap gate tied open at Middle River and Old River at DMC sites during this action period. The Grant Line Canal barrier remained open through June.

Cost of Actions

The DWR has determined that this action reduced the SWP exports by approximately 34.7 TAF. This amount assumed daily exports without this action would have been at 6680 cfs. The actual amount varied due to the requirement of meeting the Delta standards.

For All the Above Five Fish Actions

Method of Accounting for Costs

DWR will provide to the Management Agencies an accounting of the actual water, energy, storage, and conveyance costs or credits associated with the use of EWA assets in a future settlement of all EWA costs and credits. The water cost analysis will include a comparison between the actual operation (with the fish action) and a base operation (based on planned exports).

Disagreements regarding the analysis are to be discussed with the B2 Interagency Team and EWA Team. If necessary, disputes will be elevated to the WOMT for final resolution.

B2/EWA Assets

The Management Agencies have concluded that the actions described above were EWA actions, except those where B2 water covered the CVP action cost. Therefore, EWA assets will be applied to the export reductions

of the SWP and the CVP. These fish actions are not to impact the baseline delivery capability of the SWP and the CVP. Therefore, the Project Agencies are to make operations and water allocation decisions based upon the base operations plan, absent the fish action.

1/30/06

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